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| 7590 | 03/11/2005 | | EXAMINER | |
| MCKENNA LONG & ALDRIDGE LLP | | | CHUNG, DAVID Y | |
| Song K. Jung | | | ART UNIT | PAPER NUMBER |
| 1900 K Street, N.W. | | | 2871 | |
| Washington, DC 20006 | | | | |

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,088

Applicant(s)

PARK ET AL.

Examiner

David Y. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7-12,14 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,13,15 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 4 and 7 rejected under 35 U.S.C. 102(e) as being anticipated by Lee (U.S. 6,809,786).

As to claim 1, Lee discloses a liquid crystal display having a cholesteric liquid crystal color filter. Note in figure 7, the first substrate 130, the cholesteric liquid crystal color filter 134, second substrate 110, array elements 102, seal pattern 152, common electrode 136 (first electrode), and liquid crystal layer 150. See column 5, line 51 – column 6, line 36. Lee discloses forming a thin film transistor in step ST3. See column 6, lines 56-59. Lee discloses forming a pixel electrode (second electrode) in step ST7. See column 7, lines 5-10.

As to claim 2, Lee discloses a reflective LCD device. See column 5, lines 29-32.

As to claim 4, the cholesteric liquid crystal color filter layer 134 shown in figure 7 has a single-layered structure.

As to claim 7, the common electrode 136 (first electrode) would be inherently transparent, as no light would reach the cholesteric liquid crystal color filter otherwise.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. 6,809,786) in view of Bahadur (Liquid Crystals).

As to claim 8, Lee does not disclose that the common electrode is made of ITO. Bahadur discloses that ITO was commonly used for transparent electrodes because it does not have a high resistivity and does not require a complicated etching process. See pages 181-182. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use ITO to form transparent electrodes because of the aforementioned benefits.

As to claim 9, Lee does not disclose forming an alignment layer on the common electrode (first electrode). Bahadur discloses that in usual TN or STN displays, an alignment process is necessary for both substrates. See 183. TN and STN displays constitute a vast majority of LCD's on the market. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form an alignment layer on the common electrode because this was necessary in TN or STN displays.

3. Claims 10, 11, 12, 14 and 17-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. 6,809,786) in view of Bahadur (Liquid Crystals) and Jiang et al. (U.S. 6,833,891).

As to claims 10 and 19-21, Lee discloses a liquid crystal display having a cholesteric liquid crystal color filter. Note in figure 7, the first substrate 130, the cholesteric liquid crystal color filter 134, second substrate 110, array elements 102, seal pattern 152, common electrode 136 (first electrode), and liquid crystal layer 150. See column 5, line 51 – column 6, line 36. Lee discloses forming a thin film transistor in step ST3. See column 6, lines 56-59. Lee discloses forming a pixel electrode (second electrode) and an alignment layer over the pixel electrode in step ST7. See column 7, lines 5-10.

Lee does not disclose forming an alignment layer on the common electrode (first electrode). Bahadur discloses that in usual TN or STN displays, an alignment process is necessary for both substrates. See 183. TN and STN displays constitute a vast

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majority of LCD's on the market. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form an alignment layer on the common electrode because this was necessary in TN or STN displays. The seal pattern 152 would naturally overlap such an alignment layer.

Lee does not disclose forming an alignment layer under the cholesteric liquid crystal color filter. Jiang et al. discloses that an alignment layer is typically interposed between the substrate and CLC layer to align the adjacent CLC molecules. See column 3, lines 58-67. Note alignment layer 15 formed underneath cholesteric liquid crystal layer 14 in figure 1. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form an alignment layer beneath the cholesteric liquid crystal color filter in order to align the cholesteric liquid crystal molecules.

As to claim 11, note the absorption layer 132 in figure 7.

As to claim 12, Lee discloses a reflective LCD device. See column 5, lines 29-32.

As to claim 14, the cholesteric liquid crystal color filter layer 134 shown in figure 7 has a single-layered structure.

As to claim 17, the common electrode 136 (first electrode) would be inherently transparent, as no light would reach the cholesteric liquid crystal color filter otherwise.

As to claims 18, Lee does not disclose that the common electrode is made of ITO. Bahadur discloses that ITO was commonly used for transparent electrodes because it does not have a high resistivity and does not require a complicated etching process. See pages 181-182. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use ITO to form transparent electrodes because of the aforementioned benefits.

Allowable Subject Matter

Claims 3, 5, 6, 13, 15 and 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art did not teach or suggest a transmissive liquid crystal display, a double-layered cholesteric liquid crystal color filter, or the overlapped width between the first electrode and seal pattern being less than the width of the seal pattern.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (571) 272-2288. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.



**ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
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David Chung
GAU 2871
03/04/05